PROVINCE OF NOVA SCOTIA

Annual Report

OF THE

NOVA SCOTIA WATER RESOURCES COMMISSION

FOR THE YEAR ENDED
DECEMBER 31, 1968

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TO HIS HONOUR,

THE HONOURABLE VICTOR de B. OLAND, V.D.,
Lieutenant Governor of Nova Scotia

May it please your Honour:

I have the honour to submit the Annual Report of the Nova Scotia Water Resources Commission, for the year ending December 31, 1968.

I have the honour to be, Sir,

Your most obedient servant,

W. S. K. JONES,
Minister Under the Water Act.

Office of the Minister,
Halifax, N. S.
December 31, 1968

ANNUAL REPORT OF THE

NOVA SCOTIA WATER RESOURCES COMMISSIOON

For the Year Ending 31 December 1968

Hon. W. S. K. Jones,
Minister Under the Water Act,
Halifax, N. S.

Dear Sir:

I have the honour, sir, to submit the annual report of the Nova Scotia Water Resources Commission for the year ending 31 December 1968.

During the past year, the Water Resources Commission experienced a period of continuously increasing activity. While this increase in work load was general in all aspects, the greater proportion was felt in the municipal field, and this would appear to be due to the increasing exploitation of the provisions of the Municipal Services Act, for assistance in water and sewer services.

The recruiting program for technical and other personnel was pursued vigorously during the year and at the end of the period, the staff was at full strength.

The construction of water supply and waste disposal facilities for Scott Maritimes was completed in November 1967, and these have been in full operation for one year. An intensive review of the performance of the waste treatment works discloses that operation generally is good, however, there remain relatively minor problems to be solved in the immediate future.

The construction of water supply facilities for industries at Strait of Canso are nearly complete and will be operational well in advance of the start up date for any of the new industries in this area.

Several changes in the Water Act were made during the 1968 session of the Legislature. These changes were largely ad-

ministrative in nature and included a change in name of the agency from Water Authority to Water Resources Commission.

Appointed Members

The present composition of the Water Resources Commission is: Mr. E. L. L. Rowe, Chairman; Dr. J. E. Blanchard, Vice Chairman; Mr. J. W. Affleck, Member; Mr. A. J. MacDonald, Member; and Mr. R. M. Barteaux, Member. Mr. C. L. Beazley, after having served on the Commission since its inception, resigned, and has generously consented to serve as Special Consultant, Dr. J. S. Bates continues as Special Consultant.

Staff

After a recruitment program, carried out during the first half of the year, all staff vacancies were filled by the end of the year. The work load, in the field of municipal services, continued to increase considerably and only by close co-operation with the Department of Public Health were most of these projects approved without delay.

In the field of Water Supply and Stream Alterations most of the investigative work was carried out by an Engineering student hired for the Summer months. During the last month of this year, we were able to hire a Civil Engineer who will be responsible for this section.

A gradual program of cross-training is being carried out so that, eventually, all staff functions will be familiar to all staff members.

Most staff members participated in a number of basic courses in hydrology and water and waste treatment which were conducted in the Halifax area during the year.

Administration

A number of revisions were made to the Water Act by Legislature during 1968. These were mainly to clarify and simplify the decision-making processs, and the net effect was to assign this

function in its finality to the Minister as opposed to Executive Council or the Commission.

The Section pertaining to prescription of water supply areas was revised to provide greater flexibility and entertain a multipurpose concept for these areas. As well, provision was made for appeal of rulings made under this Section.

Finally, the name of the agency was changed from Nova Scotia Water Authority to Nova Scotia Water Resources Commission in order to infer a more appropriate description of the functions.

Close liaison has been maintained with Department of Public Health and remarkable successes have been manifested in clarifying pollution control practices and avoiding duplication. In fact, contrary to experience elsewhere, it seems apparent that for Nova Scotia, joint jurisdiction with Department of Public Health in matters of pollution control and water supply is a desirable feature of the Legislation.

Water Supply

The major part of site investigations, as well as design detail, for the 22 Million Gallons per day Strait of Canso Water Supply System were concluded in April of this year. A contract for the civil works, involving construction of two earth-fill dams with associated concrete spillways, one earth-fill auxiliary dam, and the substructure and steelwork for the two pumping stations, was awarded in April and work commenced the first part of May.

The clearing of two reservoir areas, involving nearly 1000 acres in total, was concluded in November. The reservoirs will be linked by a pumping station and above-ground pipeline. A second above-ground pipeline will connect the main pumping station at Landrie Lake with the distribution pipeline system in the Point Tupper Industrial Park area. Erection of all pipelines was nearing completion in December.

The installation of all electrical and mechanical equipment making up the last phase of the project, was underway in October. Water was available to the new thermal generating station in mid December 1968. It is expected that the permanent facilities of the main pumping station at Landrie Lake will be ready for start up in January, 1969.

The attention of the Commission during the past two years, in regard to water supply, has been focused on the construction of large water supply facilities for industry such as the large Strait of Canso development. Other questions pertaining to use of water have been increasing in number and degree.

A general re-alignment of duties of staff has provided means for management of affairs pertaining to water rights, stream alterations, water demands for recreation and wildlife, and generally those aspects which are not directly associated with municipal and industrial use. In this context, it is planned to review and revise the conditions and charges to use water as a resource.

Pollution Control

Municipal

The year 1968 has been the fufillment of much of the past work which has been done in the field of Municipal Pollution Abatement by the Water Resources Commission. At least some of the credit must go to the new method of financial assistance for pollution control studies and added financial assistance under the Municipal Services Act for capital projects.

During 1968, one hundred and eight Joint Certificates of Approval were processed. The approvals included seventy-eight water, sanitary sewer and storm sewer approvals, fourteen approvals for small sewage treatment facilities, and sixteen approvals for larger sewer treatment plants, sewerage and sewage treatment plants, and water supply systems, sewerage systems and sewage treatment facilities.

Notable among the approved projects are:

		Capital Cost
Berwick Lagoon Re-design	430,000 gal/day aerated lagoon (modifications)	$ 125,000.00
Port Hawkesbury	500,000 gal/day trickling filter plant, sewerage and water distribution system	$1,093,000.00
Sackville Development	250,000 gal/day contact stabilization plant, sewerage and water supply	$ 870,000.00
Oxford	100,000 gal/day treatment plant, sewerage and water distribution system	$ 920,000.00

Port Hastings	50,000 gal/day treatment plant and sewerage system $350,000.00
Salmon River	80,000 gal/day treatment plant and sewerage system $215,000.00
Sandy Point, Shelburne	50,000 gal/day treatment plant, sewerage and water supply $175,000.00
Amherst Marsh	50,000 gal/day treatment plant and sewerage system $175,000.00
Point Edward Ind. Park	263,000 gal/day treatment plant, and sewerage system $620,000.00
Mingo Corner	20,000 gal/day treatment plant and sewerage system $ 63,700.00
Green Groves Subdivision Kings County	50,000 gal/day sewage treatment plant $ 29,500.00

Twenty-nine pollution control studies were completed, or have been approved. Most prominent of these studies are the completion of the Dartmouth Study and the undertaking of the City of Halifax Study and the Pictou County Regional Study. The Pictou County Regional Study will include New Glasgow, Trenton, Stellarton, Pictou and many of the larger villages in Pictou County.

The following are some of the projects whichh were significant in 1968:

The City of Sydney has completed Phase I ($381,000) and are about to start Phase II ($250,000) of their pollution control program.

The Village of Shubenacadie has completed their sewerage and sewage treatment program ($270,000).

The Village of Pugwash is nearing completion of its sewerage and sewage treatment program ($252,000).

The Village of Tatamagouche has completed the first year of operation of their sewerage and sewage treatment facilities which were constructed at a capital cost of $175,000.

The Town of Antigonish has completed Phase I ($30,000) of their pollution control program and have submitted a mas-

ter plan for approval of a program leading to complete sewage treatment by 1972.

The Village of Bible Hill has submitted a commitment for sewage treatment facilities by 1970.

The City of Dartmouth has undertaken major works to separate their storm and sanitary sewers during 1968 and have started construction of a major water works extension which will provide water supply for Port Wallis and the Burnside Industrial Park Areas, and will eventually loop their Downtown Area distribution system.

The Municipality of the County of Halifax are proceeding with the design of a 2 Million Gallons per day sewage treatment plant for the Bedford-Sackville Area. Future plans for the facility envision the servicing of a population of 50,000 to 75,000 persons.

Industrial

Efforts in this regard have been directed mainly in three areas; facilities at Boat Harbour, East River (Chester), and fish meal plants.

During the year, the facilities for treating pulp mill waste at Boat Harbour, Pictou County, were evaluated. The evaluation shows that 75-80% of the degradeable organic material and 83% of the solids are being removed from the waste stream. There is no evidence to demonstrate other than complete removal of all material toxic to lobster larvae. Compared to usual design criteria, these facilities can be considered successful and, indeed, in some respects, the design expectations have been exceeded.

There were, however, three problems which are receiving engineering attention. These are, odours, generation of foam, and color.

Currently, work is underway to determine the best measures for the elimination of odour and construction work is nearly complete to prevent the formation of foam. Regrettably, there is no practical known technique for the elimination of color. However, the entities responsible for color are inert, and, other than to detract from the aesthetic appearance of the area, there are no known harmful effects. Indeed, the brown color, extracted from wood, is not, except for concentration, significantly different from that found in many natural watercourses in the Province.

In any event, when a satisfactory technique has been developed to deal with this condition, appropriate recommendations will be made for its incorporation in the works.

Pollution from the hardboard mill at East River (Chester) is of major concern to the Commission. The works proposed by the company have been approved by the Commission and, when these are in full operation, there is every reason to believe that satisfactory pollution abatement will be achieved. However, the sealing of leaks in the holding basin has proven to be a difficult task, and the facilities are, for this reason, not in full operation. The company concerned has been informed that a vigorous and determined program must be undertaken immediately to put these works in operation if legal action is to be avoided, and it is expected that this work will be completed by early Spring of 1969.

The general problem of pollution abatement from fish meal plants has received considerable attention. The problem generally obtains from the lack of practical and proven pollution control techniques. However, a process is to be examined during 1969 in cooperation with Canada Department of Fisheries with good prospects that a means may be available for the abatement of pollution with some possibility of a return on capital investment. In preparation for this project, one of the Commission's staff engineers went to British Columbia for a week to observe preliminary trials.

Generally, the Commission has continued to achieve success working with industries to undertake waste treatment, but the hopes in the past year to be able to mount a vigorous campaign to deal with old and established industrial pollution have been frustrated. This latter circumstance has been largely due to attention with matters commanding a higher priority and resources which limit aggressive participation in all aspects. At year's end there are indications that the work load may be diminished in some areas and will allow more attention to this particular field.

Research

The applied research program to discover advanced techniques for disinfecting sewage is nearing completion and has produced remarkably encouraging results. It appears that one technique developed in the laboratory and tested on a pilot scale, will probably result in the acquisition of a patent by the Province. A second technique, the investigation of which is now nearing termination in the laboratory, is demonstrating favourable results and the prospects that this may be patented are good. During 1969, it is anticipated that engineering will proceed so that one of these techniques may be proved in full scale operation.

Utility Operation

This part of the report pertains to utilities owned by the Province and managed by Commissions which respond indirectly to the Water Resources Commission. This arrangement is deemed to be temporary and, pending resolution of a more permanent form of management by Department of Attorney General.

During the year, water supply utilities at Abercrombie Pt., Grand Etang, Town of Canso, Riverport and Lower East Pubnico have operated well supplying a total of 20.5 Million Gallons per day. There remains, from the construction of these facilities, numerous small items such as meters, modifications to equipment, switch gear and the like to be completed and this work is proceeding.

Waste treatment facilities at Boat Harbour and Town of Canso operated well during the past year. Similarly with water supply facilities there is construction work of a minor nature to be completed.

During 1969, it is expected that water supply facilities at East River (Chester) and Lower East Pubnico may become property of the Province.

Conclusion

In retrospect, events of the past year point out that the Water Resources Commission has made much progress toward the establishment of a way of management of water resources. While this progress is gratifying, there are growing numbers of unresolved complex problems associated with the beneficial use of water for which solutions must be found. These problems pertain to the proper utilization of water which is reasonable and consistent with the public interest and relate to agriculture, power, fish and wildlife and recreation.

The Water Resources Commission wishes to recognize the cooperative and helpful attitude of Provincial and Federal Departments of Government and other organizations outside Government which have contributed to make the progress of the past year possible.

Respectfully submitted,

E. L. L. ROWE,
CHAIRMAN.